

IN THE CLAIMS:

Claims 1-2 (Canceled)

3. (Currently Amended) A method of feeding a ~~first~~-ruminant, which comprises feeding the ruminant an effective amount for colonization of the rumen of the ruminant of a microorganism comprising a propionibacteria strain selected from the group consisting of strains P169, P170, P179, P195, and P261 of the genus *Propionibacterium*, which has the following characteristics: (1) producing at least 0.9% (vol/vol) propionate in sodium lactate broth, and (2) producing at least 0.2% (vol/vol) propionate in rumen fluid (in vitro).

4. (Currently Amended) The method of claim 3, wherein the strain ~~comprises strain~~ P169 has a group I profile produced by *Xba* I digests of genomic DNA as shown in Figures 1-2 and Table 3.

5. (Currently Amended) The method of claim 3, wherein the ~~first~~ ruminant is a bovine.

6. (Currently Amended) The method of claim 3, wherein the ~~first~~ ruminant is fed the microorganisms such that the amount of microorganism delivered to the ~~first~~ ruminant is about  $6 \times 10^9$  CFU to about  $6 \times 10^{12}$  CFU/animal/day.

7. (Currently Amended) The method of claim 6, wherein the ~~first~~ ruminant is fed the microorganisms such that the amount of microorganism delivered to the ~~first~~ ruminant is about  $6 \times 10^{11}$  CFU/animal/day.

8. (Canceled)

9. (Currently Amended) The method of claim 3, wherein the ~~first~~ ruminant is fed the microorganism from -2 to 12 weeks postpartum.

Claims 10-41 (Canceled)

42. (Currently Amended) The method of claim 41 3, further comprising:  
before and after feeding the ruminant the microorganism, testing the ruminant for  
energy balance; and

obtaining a statistically significant improvement in the energy balance in the ruminant after it is fed the microorganism when compared to the energy balance in the ruminant before it is fed the microorganism~~wherein the energy balance is increased.~~

43. (Currently Amended) The method of claim 41 ~~3~~, further comprising:

before and after feeding the ruminant the microorganism, testing the ruminant for plasma non-esterified fatty acids levels; and

at week 1 postpartum, obtaining a statistically significant improvement in the plasma non-esterified fatty acids levels in the ruminant after it is fed the microorganism when compared to the plasma non-esterified fatty acids levels in the ruminant before it is fed the microorganism~~wherein the plasma non-esterified fatty acids levels are increased.~~

44. (Currently Amended) The method of claim 41 ~~3~~, further comprising:

before and after feeding the ruminant the microorganism, testing the ruminant for plasma leptin levels; and

obtaining a statistically significant improvement in the plasma leptin levels in the ruminant after it is fed the microorganism when compared to the plasma leptin levels in the ruminant before it is fed the microorganism~~wherein the plasma leptin level is increased.~~

45. (Currently Amended) The method of claim 3, wherein the ~~first~~-ruminant is fed the microorganism until populations of  $10^5$  to  $10^8$  CFU/ml ruminal fluid are established in the rumen of the ~~first~~-ruminant.

46. (Currently Amended) The method of claim 3, further comprising:  
before and after feeding the ~~first~~-ruminant, testing a protein content of a milk produced by the ~~first~~-ruminant,  
wherein during at least the first week of lactation, there is a statistically significant increase in the percent of protein in the milk produced by the ~~first~~-ruminant after the feeding of the microorganism has an enhanced protein content when compared to a milk produced by the ~~a second~~-ruminant not before it is fed the microorganism.

47. (Currently Amended) The method of claim 3, further comprising:  
before and after feeding the ~~first~~-ruminant, testing a fat content of a milk produced by the ~~first~~-ruminant;  
wherein -the milk produced by the ~~first~~-ruminant after the feeding of the microorganism has a higher about 6% greater percent of fat for at least the first 12 weeks of lactation when compared to a milk produced by a ~~second~~-the ruminant not before it is fed the microorganism.

48. (Currently Amended) The method of claim 3, further comprising:

before and after feeding the first-ruminant, testing a-the percent of solids-non-fat  
content of a milk produced by the ~~first~~-ruminant;

wherein during the first week of lactation, the milk produced by the ~~first~~-ruminant  
after the feeding of the microorganism has a ~~substantially greater percent of~~ statistically  
significant increase in solids-non-fat when compared to a milk produced by ~~a-second-the~~  
ruminant ~~not-before it is~~ fed the microorganism.

49. (Currently Amended) A method of feeding a ~~first~~-ruminant, comprising feeding  
the ~~first~~-ruminant an effective amount for colonization of the rumen of the ruminant of a  
microorganism of the genus *Propionibacterium* comprising a propionibacteria strain  
having a group I profile produced by *Xba* I digests of genomic DNA as shown in Figures  
1-2 and Table 3.

50. (Currently Amended) The method of claim 49, wherein the microorganism  
~~comprises a propionibacteria strain selected from the group consisting of strains P169,~~  
~~P170, P179, P195, and P264~~ has the following characteristics: (1) producing at least 0.9%  
(vol/vol) propionate in sodium lactate broth, and (2) producing at least 0.2% (vol/vol)  
propionate in rumen fluid (in vitro).

51. (Canceled)

52. (Currently Amended) The method of claim 49, wherein the ~~first~~-ruminant is a bovine.

53. (Currently Amended) The method of claim 49, wherein the ~~first~~-ruminant is fed the microorganism such that the amount of microorganism delivered to the ~~first~~-ruminant is about  $6 \times 10^9$  CFU to about  $6 \times 10^{12}$  CFU/animal/day.

54. (Currently Amended) The method of claim 53, wherein the ~~first~~-ruminant is fed the microorganism such that the amount of microorganism delivered to the ~~first~~-ruminant is about  $6 \times 10^{11}$  CFU/animal/day.

55. (Canceled)

56. (Currently Amended) The method of claim 49, wherein the ~~first~~-ruminant is fed the microorganism from -2 to 12 weeks postpartum.

57. (Canceled)

58. (Currently Amended) The method of claim ~~5749, wherein the energy balance is increased~~ further comprising:

before and after feeding the ruminant the microorganism, testing the ruminant for energy balance; and

obtaining a statistically significant improvement in the energy balance in the ruminant after it is fed the microorganism when compared to the energy balance in the ruminant before it is fed the microorganism.

59. (Currently Amended) The method of claim ~~5749, wherein the plasma non-esterified fatty acids levels are increased~~ further comprising:

before and after feeding the ruminant the microorganism, testing the ruminant for plasma non-esterified fatty acids levels; and

at week 1 postpartum, obtaining a statistically significant improvement in the plasma non-esterified fatty acids levels in the ruminant after it is fed the microorganism when compared to the plasma non-esterified fatty acids levels in the ruminant before it is fed the microorganism.

60. (Currently Amended) The method of claim ~~5749, wherein the plasma leptin level is increased~~ further comprising:

before and after feeding the ruminant the microorganism, testing the ruminant for plasma leptin levels; and

obtaining a statistically significant improvement in the plasma leptin levels in the ruminant after it is fed the microorganism when compared to the plasma leptin levels in the ruminant before it is fed the microorganism.

61. (Currently Amended) The method of claim 49, wherein the ~~first~~-ruminant is fed the microorganism until populations of  $10^5$  to  $10^8$  CFU/ml ruminal fluid are established in the rumen of the ~~first~~-ruminant.

62. (Currently Amended) The method of claim 49, further comprising:  
before and after feeding the ruminant, testing a protein content of a milk produced by the ruminant, wherein a milk produced by the ~~first~~-ruminant after it is fed the microorganism has an-enhanced-a statistically significant increase in protein content when compared to a milk produced by a-second-the ruminant -notbefore it is -fed the microorganism.

63. (Currently Amended) The method of claim 49, further comprising:  
before and after feeding the ruminant, testing a fat content of a milk produced by the ruminant, wherein a milk produced by the ~~first~~-ruminant after it is fed the



microorganism has about 6% a higher percent of fat when compared to a milk produced by ~~a second~~ the ruminant ~~not before it is~~ fed the microorganism.

64. (Currently Amended) The method of claim 49, further comprising:  
before and after feeding the ruminant, testing the percent of solids-non-fat content of a  
milk produced by the ruminant, wherein during the first week of lactation, a milk  
produced by the ruminant after it is fed the microorganism has a ~~substantially greater~~  
statistically significant increase in the percent of solids-non-fat when compared to a milk  
produced by ~~a second~~ the ruminant ~~not before it is~~ fed the microorganism.

65. (New) The method of claim 3, wherein the microorganism is strain P169.

66. (New) The method of claim 3, wherein the microorganism is strain P170.

67. (New) The method of claim 3, wherein the microorganism is *P. acidipropionici*  
or *P. jensenii*.

68. (New) The method of claim 49, wherein the microorganism is strain P169.

69. (New) The method of claim 49, wherein the microorganism is strain P170.

70. (New) The method of claim 49, wherein the microorganism is *P. acidipropionici* or *P. jensenii*.

71. (New) A method of feeding a bovine, comprising feeding the bovine an effective amount to colonize the rumen of the bovine of a microorganism of the genus *Propionibacterium*, the microorganism being strain P169.

72. (New) The method of claim 71, wherein the bovine is fed the microorganism such that the amount of microorganism delivered to the bovine is about  $6 \times 10^9$  CFU to about  $6 \times 10^{12}$  CFU/animal/day.

73. (New) The method of claim 72, wherein the bovine is fed the microorganism such that the amount of microorganism delivered to the bovine is about  $6 \times 10^{11}$  CFU/animal/day.

74. (New) The method of claim 71, wherein the bovine is fed the microorganism from -2 to 12 weeks postpartum.

75. (New) The method of claim 71, further comprising:

before and after feeding the bovine the microorganism, testing the bovine for energy balance; and

obtaining a statistically significant improvement in the energy balance in the bovine after it is fed the microorganism when compared to the energy balance in the bovine before it is fed the microorganism.

76. (New) The method of claim 71, further comprising:

before and after feeding the bovine the microorganism, testing the bovine for plasma non-esterified fatty acids levels; and

at week 1 postpartum, obtaining a statistically significant improvement in the plasma non-esterified fatty acids levels in the bovine after it is fed the microorganism when compared to the plasma non-esterified fatty acids levels in the bovine before it is fed the microorganism.

77. (New) The method of claim 71, further comprising:

before and after feeding the bovine the microorganism, testing the bovine for plasma leptin levels; and

obtaining a statistically significant improvement in the plasma leptin levels in the bovine after it is fed the microorganism when compared to the plasma leptin levels in the bovine before it is fed the microorganism.

78. (New) The method of claim 71, wherein the bovine is fed the microorganism until populations of  $10^5$  to  $10^8$  CFU/ml ruminal fluid are established in the rumen of the bovine.

79. (New) The method of claim 71, further comprising:

before and after feeding the bovine, testing a protein content of a milk produced by the bovine, wherein a milk produced by the bovine after it is fed the microorganism has a statistically significant increase in protein content when compared to a milk produced by the bovine before it is fed the microorganism.

80. (New) The method of claim 71, further comprising:

before and after feeding the bovine, testing a fat content of a milk produced by the bovine, wherein a milk produced by the bovine after it is fed the microorganism has about 6% higher percent of fat when compared to a milk produced by the bovine before it is fed the microorganism.

81. (New) The method of claim 71, further comprising:

before and after feeding the bovine, testing the percent of solids-non-fat content of a milk produced by the bovine, wherein during the first week of lactation, a milk produced by the bovine after it is fed the microorganism has a statistically significant increase in the percent of solids-non-fat when compared to a milk produced by the bovine before it is fed the microorganism.